## Optional Features for Outdoor Learning Areas

## Air Quality and Weather Stations

**Description –** A weather station provides students and teachers an area in the outdoor learning area to take scientifically valid measurements, record data, and create maps and graphs about the atmosphere, hydrology, soils and land cover. Anyone interested in a weather station can do an online search for "school weather stations" and find many opportunities that will provide turn-key stations that students can use. For example, the GLOBE program at http://www.globe.gov/globe_flash.html provides teaching/learning systems, and links students with other students and professionals all over the world.

Others may choose a more informal route and build a weather station with a simple windsock, anemometer (to measure wind velocity), rain gauge, sundial, and thermometer. The area could also be used for observation of cloud cover, seasonal changes, etc. Simply by attaching double sided tape to a post, air quality can be monitored. An evergreen shelter belt between a road and a school can help reduce highway noise and dust problems if it is at least 30 feet wide.

**Size –** A four feet by four feet area is large enough for small student groups to record information in the outdoor learning area weather station.

**Location –** The weather station should be close enough to the building for easy access during inclement weather, yet in a clear area not affected by overhangs, shadows, or wind blocks. The sundial needs to be in a sunny area.

**Materials Needed** – A windsock, sundial, thermometer, anemometer, soil thermometer and rain gauge are the basics in the weather station. Several 4 inch by 4 inch wooden posts for mounting equipment and a 4 sided, ventilated cube for shading the thermometer are needed. Make the posts the appropriate height for comfortable observation by your student population. The cube may be constructed from a 4 feet wooden house shutter. Native plants can add interest to the weather station. If a conifer windbreak is being installed, conifers indigenous to your area are necessary.

**Labor Needed –** Labor is needed to dig a hole for the pole and build the shading box. Plants and trees will need to be planted.

**Technical Assistance –** The National Weather Service (**http://www.nws.noaa.gov/**) and area television web sites are helpful in sharing and comparing data.
EPA has several activity guides to help teach about air quality issues. See **http://www.epa.gov/teachers/curriculumair.htm**
The Kentucky Division of Air Quality also has information and educational materials and programs about Kentucky's air quality. See **http://www.air.ky.gov/**

**Maintenance –** During freezing weather, be sure to remove the rain gauge to prevent cracking. Check the windsock periodically for replacement.

**Challenges –** Vandalism can occur with since the equipment that can be easily broken or removed. Locating near visible windows helps during school hours and locating the weather station near the rear of the building and away from play areas may be helpful. Mowing crews may complain of the posts as obstacles to go around when mowing. Inviting them to help plan the station may help with this.